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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/569,079	12/04/2006	Kenneth Hillel Peter Harris	P68780US1	2611
136 7590 11/22/2010 JACOBSON HOLMAN PLLC 400 SEVENTH STREET N.W. SUITE 600 WASHINGTON, DC 20004				
EXAMINER				
BARCENA, CARLOS				
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1728				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary**Application No.**

10/569,079

Applicant(s)HARRIS, KENNETH HILLEL
PETER**Examiner**

Carlos Barcena

Art Unit

1728

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 October 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 3, 9 and 16-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3, 9, 17 and 18 is/are rejected.
- 7) ☒ Claim(s) 19 and 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Status of Claims

1. The amendment filed 10/19/2010 has been entered. Claims 1, 3, 9, and 16-20 remain pending.
2. The previous 35 USC 102(b) rejection of claims 1 and 3 as being anticipated by Noble *et al.* (2,995,453) is withdrawn in light of Applicant's arguments (See Response to Arguments).
3. The previous 35 USC 103(a) rejection of claim 9 as being unpatentable over Noble *et al.* (2,995,453) in view of Yates (3,650,783) is withdrawn as being directly or indirectly dependent on independent claim 9 (See Response to Arguments).

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Instant claim, which is dependent on claim 1, recites the cationic component is one or more of Fe, Al, and Zr, all of which are either trivalent or tetravalent. However, instant claims goes on to further recite compounds comprise ferrous chromite FeCr_2O_4 , olivine $(\text{Mg,Fe})_2\text{SiO}_4$, norite (iron calcium aluminosilicate), and ferruginous mullite $\text{Si}_2(\text{SiO}_3)_3$ (aluminum silicate). Ferrous chromite does not have a trivalent or tetravalent cation from the recited list of Fe, Al, and Zr. Ferrous = Fe^{2+} . Similarly for olivine, the iron is $2+$. Thus, these components do not comprise a compound with a trivalent or tetravalent cation selected from Fe, Al, and Zr.

6. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 9 recites the broad recitation "alkali phosphate", and the claim also recites "trisodium or tripotassium" which is the narrower statement of the range/limitation.

Claim Rejections - 35 USC § 102

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. **Claims 1, 3 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Kubo et al. (5,298,200).**

Regarding claim 1, Kubo discloses dental refractory model materials comprising as powdery components:

- a colloidal silica dispersion (sol);
- a mineral including trivalent or tetravalent cations (*e.g.* alumina, zirconia, mullite, cordierite);
- 5 to 20 wt.% of a soluble phosphate (salt) (abstract), specifically monoammonium phosphate (Table 1).

A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

Regarding claims 3 and 17, Kubo discloses mullite (aluminum silicate) (abstract) with aluminum being trivalent.

Claim Rejections - 35 USC § 103

9. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

10. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kubo *et al.* (5,298,200) in view of Guerra *et al.* (5,677,371).

Regarding claim 16, Kubo teaches a silica sol. Kubo does not teach an alumina sol.

Guerra teaches a slurry for the producing investment casting shell-molds comprising a colloidal sol selected from the group consisting of silica sol, zirconia sol, alumina sol, and yttria sol (col. 18, lines 53-55).

It would have been obvious to one of ordinary skill in the art at the time of invention to substitute one known element (*e.g.* alumina sol) for another (*e.g.* silica sol) which yield

predictable results to one of ordinary skill in the art as shown by Guerra. The motivation to combine Kubo and Guerra can be found in Guerra who states investment casting is a known technique for dental castings (col. 1, lines 46-54).

11. Claims 9 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubo *et al.* (5,298,200) in view of Yates (3,650,783) and Guerra *et al.* (5,677,371).

Regarding claim 9, Kubo teaches monoammonium phosphate (Table 1).

Kubo does not teach an alkali phosphate or sodium or potassium hypophosphite.

Yates, directed to investment casting molds comprising trivalent metal phosphate coated colloidal silica molding powders, teaches sources of soluble phosphate salts include sodium phosphate, potassium phosphate, ammonium phosphate and their acid salts such as sodium dihydrogen phosphate and sodium monohydrogen phosphate (col. 2, lines 42-46).

It would have been obvious to one of ordinary skill in the art at the time of invention to substitute one known element (*e.g.* an alkali phosphate) for another (*e.g.* ammonium phosphate) which yield predictable results to one of ordinary skill in the art as shown by Yates motivated by Guerra who states investment casting is a known technique for dental castings (col. 1, lines 46-54).

Regarding claim 18, Kubo teaches mullite (aluminum silicate) (abstract).

Allowable Subject Matter

12. Claims 19 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

13. Applicant's arguments, see Remarks p. 4-5, with respect to the rejection(s) of claim(s) 1 and 3 under Noble *et al.* (2,995,453) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Kubo *et al.* (5,298,200). The rejection is withdrawn because, as correctly cited by Applicant, mono-aluminum phosphate is not water soluble. The nomenclature used by Noble is misleading. Noble states the mono-aluminum phosphate is a 50% aqueous solution; a more appropriate term is aqueous suspension.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carlos Barcena whose telephone number is (571) 270-5780. The examiner can normally be reached on Monday through Thursday 8AM - 5PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer Michener can be reached on (571) 272-1424. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jennifer K. Michener/
Supervisory Patent Examiner, Art Unit 1728

/Carlos Barcena/
Examiner, Art Unit 1728